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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/695,679	10/24/2000	Sakhrat K. Khizroev	284867-00005	3444

29694 7590 02/24/2003

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EXAMINER

DAVIS, DAVID DONALD

ART UNIT	PAPER NUMBER
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2652

DATE MAILED: 02/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/695,679

Applicant(s)

KHIZROEV ET AL.

Examiner

David D. Davis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4,7</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. Receipt is acknowledged of the Information Disclosure Statement (IDS) received October 24, 2000 and June 6, 2002.

Claim Rejections - 35 USC § 112

2. Claims 4 and 18-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, in lines 1 and 2 of claim 4 "said nonmagnetic support" lacks antecedent basis. Similar indefinite exists in claims 18-20.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-6, 9-11, 13-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Schewe (US 4,742,413). As per claim 1, Schewe shows in figure 1 a perpendicular recording head including main pole 10 and a mechanism, magnetically permeable layer 9 for concentrating magnetic flux from main pole 10 onto a small surface area of a magnetic recording medium A. As per claim 2, Schewe shows in figure 1 a perpendicular recording head includes a nonmagnetic substrate 3 having a surface and a main pole 10 including a magnetically permeable plating 9

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covering the substrate's surface. As per claim 3, the claim is directed to perpendicular head, per se, the method limitation appearing in line 2 of claim 3 has only been accorded weight to the extent that it affects the structure of the completed perpendicular head. Note that "[d]etermination of patentability in 'product-by-process' claims is based on product itself, even though such claims are limited and defined by process [i.e., "electroplated surface"], and thus product in such claim is unpatentable if it is the same as, or obvious form, product of prior art, even if prior product was made by a different process", *In re Thorpe, et al.*, 227 USPQ 964 (CAFC 1985). Furthermore, note that a "[p]roduct-by-process claim, although reciting subject matter of claim in terms of how it is made [i.e., "electroplated surface"] is still product claim; it is patentability of product claimed and not recited process steps that must be established, in spite of fact that claim may recite only process limitations", *In re Hirao and Sato*, 190 USPQ 685 (CCPA 1976). Thus, the magnetically permeable material 9 is a surface covering.

As per claim 4, figure 1 of Schewe shows the nonmagnetic substrate 3 defining a step topology within the recording head. As per claim 5, figure 1 further shows an electrically conductive coil 18 adjacent to the main pole 10. The electrically conductive coil 18 is electrically connected with a power supply. As per claim 6, Schewe discloses that the head is a write head. As per claim 9, Schewe discloses in column 4, lines 53-59 that main pole 10 has a width, and the width does not exceed 300 nm. As per claim 10, the main pole 10 is made from a material selected from the group consisting of permalloy, Ni/Fe, and nitrides, as disclosed in column 6, lines 48-52 of Schewe.

As per claim 11, Schewe discloses a method of making a main pole 10 of a perpendicular recording head for use with a magnetic recording medium A. The method includes the steps

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of providing a nonmagnetic substrate 3 having a surface and covering the substrate's 3 surface with a magnetically permeable material 9. As per claim 13, the magnetically permeable material 9 covering the substrate's 3 surface is magnetically soft, as disclosed in column 6, lines 48-52 of Schewe. As per claim 14, the magnetically permeable material covering the substrate's surface is permalloy, as disclosed in column 6, lines 48-52 of Schewe. As per claim 15, the magnetically permeable material covering the substrate's surface is Ni/Fe, as disclosed in column 6, lines 48-52 of Schewe. As per claim 16, the magnetically permeable material covering the substrate's surface is a nitride, as disclosed in column 6, lines 48-52 of Schewe.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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7. Claims 7, 12 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schewe (US 4,742,413). Schewe discloses the claimed invention with respect to the claims, supra. However, Schewe is silent as to the head being a magnetoresistive read head or the head being a giant magnetoresistive read head.

Schewe is also silent as to the step of covering the substrate's surface with a magnetically permeable material is performed by plating and the step of creating a step topology, performed by photolithography, within the recording head before the step of covering the substrate's surface.

Schewe is additionally silent as to the step of securing the nonmagnetic support to a joint before the step of creating a step topology within the recording head, and the step of securing the nonmagnetic support to a joint is performed by vacuum deposition.

Official notice is taken of the fact that a magnetoresistive or giant magnetoresistive read heads are notoriously old and well known in the magnetic head art.

Official notice is also taken of the fact that the step of covering the substrate's surface with a magnetically permeable material is performed by plating and the step of creating a step topology, performed by photolithography, within the recording head before the step of covering the substrate's surface is notoriously old and well known in the magnetic head art.

Official notice is additionally taken of the fact that the step of securing the nonmagnetic support to a joint before the step of creating a step topology within the recording head, and the step of securing the nonmagnetic support to a joint is performed by vacuum deposition.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide the inductive head of Schewe with a magnetoresistive or giant

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magnetoresistive read head as taught in the magnetic head art. The rationale is as follows: one of ordinary skill in the art at the time the invention was made would have been motivated to provide an inductive head with a magnetoresistive or giant magnetoresistive read head so as to form a merged or combined head, which is well within the purview of a skilled artisan and absent an unobvious result, so as to increase the read density from the magnetic recording medium.

It also would have been obvious to a person having ordinary skill in the art at the time the invention was made to include the step of covering the substrate's surface with a magnetically permeable material is performed by plating and the step of creating a step topology, performed by photolithography, within the recording head before the step of covering the substrate's surface in the manufacture of the head of Schewe as taught in the magnetic head art. The rationale is as follows: one of ordinary skill in the art at the time the invention was made would have been motivated to the step of covering the substrate's surface with a magnetically permeable material is performed by plating and the step of creating a step topology, performed by photolithography, within the recording head before the step of covering the substrate's surface in the manufacture of the head, which is well within the purview of a skilled artisan and absent an unobvious result, because plating and photolithography are manufacture techniques that are cost effective and easily optimized for thin film magnetic heads.

It additionally would have been obvious to a person having ordinary skill in the art at the time the invention was made to include the step of securing the nonmagnetic support to a joint before the step of creating a step topology within the recording head, and the step of securing the nonmagnetic support to a joint is performed by vacuum deposition in the manufacture of the


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head of Schewe as taught in the magnetic head art. The rationale is as follows: one of ordinary skill in the art at the time the invention was made would have been motivated to include the step of securing the nonmagnetic support to a joint before the step of creating a step topology within the recording head, and the step of securing the nonmagnetic support to a joint is performed by vacuum deposition, which is well within the purview of a skilled artisan and absent an unobvious result, because securing and vacuum deposition are manufacture techniques that are cost effective and easily optimized for thin film magnetic heads.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David D. Davis whose telephone number is (703) 308-1503. The examiner can normally be reached on Mon., Tues., Thurs. and Fri. between 7:30-6:00. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900. Any other inquiry should be directed to the customer service center whose telephone number is (703) 306-0377.


David D. Davis
Primary Examiner
Art Unit 2652

ddd
February 22, 2003